

In the Specification

Please add the attached new paragraphs after paragraph [0014].

[0014.1] A specific embodiment of the subject invention is directed to methods of synthesis for compounds substituted with pentafluorosulfonyl. A method of the subject invention is directed to contacting a hexane solution of one or more compounds with a SF_5Cl solution. Preferably, the compounds are unsaturated. More preferably, the unsaturated compounds are substituted or unsubstituted aliphatic or alicyclic alkenes or alkynes, where the substituents may be one or more aryl or alkyl groups that themselves may bear functional groups such as alkenes, alcohols, halogens, ketones, aldehydes, carboxylic acids, carboxylic acid derivatives or other common organic functional groups.

[0014.2] The method further comprises contacting the resulting solution with one or more initiators. The initiator is selected from the group consisting of dialkylboranes, trialkylboranes, 9-borabicyclo[3.3.1] nonane, and mixtures thereof. The initiated reaction of said compounds and said SF_5Cl solution can proceed under conditions suitable for the addition of pentafluorosulfonyl substituents to the compounds. Preferably, the reaction is allowed to proceed to completion.

[0014.3] Optionally, the pentafluorosulfonyl substituted compounds can undergo elimination or oxidation, hydrolysis, drying, and/or purification. Preferably, any drying is performed over a desiccant.

[0014.4] In another embodiment, the initiator is added to a hexane solution containing SF_5Cl before the resulting solution is contacted with the one or more compounds. In yet another embodiment, the initiator is added to a hexane solution containing one or more compounds prior to the combination of the solution containing SF_5Cl and the solution containing a compound.

[0014.5] A preferred method is directed to the synthesis of a pentafluorosulfonyl aromatic, specifically a pentafluorosulfonyl benzene. A combination of 4,5-dichloro-1-cyclohexene, CH_2Cl_2 , SF_5Cl , and a catalyst selected from the group consisting of dialkylboranes, trialkylboranes, 9-borabicyclo[3.3.1] nonane, and mixtures thereof is prepared. The solvent is evaporated from the

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combination. The product produced thereby is contacted with a solution of sodium ethoxide (NaOEt in ethanol). Water is added to this solution, which is extracted. The extract is washed and dried over a desiccant. Solvent is evaporated from the extract, and pentafluorosulfanylbenzene is recovered.

Please substitute paragraph [0020] on page 9 of the specification with the following paragraph:

[0020] Synthesis of 1-pentafluorosulfanyl-2, 4, 5-trichloro-cyclohexane: A three-necked round bottom flask equipped with a dry ice reflux condenser and a nitrogen inlet was charged with ~~4,5-dichloro-1-cyclohexane~~ 4,5-dichloro-1-cyclohexene (2.1 g, 0.014M) and 25 mL of dry CH_2Cl_2 . The mixture was cooled to -60°C and SF_5Cl (8.4g, 0.042M, 3.7 eq.) was added. One and one-half (1.5) mL of a Et_3B solution (1M solution in hexane, 0.1 eq.) was slowly added to the mixture using a syringe. Temperature was slowly increased to -30°C and the mixture was stirred at -30° to -20°C for four hours. The solvent was evaporated, furnishing an essentially pure product (4.14g, 0.013M) in a yield of about 94%. The product had the following characteristics: ^1H NMR spectrum (CDCl_3 , 300 MHz): 4.7 (broad singlet, 1H, CH-SF_5), 4.4-4.15 (m, 3H, CHCl), 3-2.4 (m, 4H, CH_2); and ^{19}F NMR spectrum (CDCl_3): 82.9 (m, 1F), 57.9 (broad d, 4F).